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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,261	09/26/2000	David W. Chew	3123-336	4850

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EXAMINER

AGUIRRECHEA, JAYDI A

ART UNIT PAPER NUMBER

2834

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/670,261

Applicant(s)

CHEW, DAVID W.

Examiner

Jaydi A. Aguirrechea

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-17, 19, 20, 25, 26 and 31-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 11-15 and 31-50 is/are allowed.
- 6) ☒ Claim(s) 6, 7, 9, 10, 16, 17, 19, 20 and 51-70 is/are rejected.
- 7) ☒ Claim(s) 25 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. In view of the Appeal Brief filed on 9/16/03, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 6-10, 16, 17, 19, 20, 51-62 and 64-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,982,069/6,040,650 (which is a continuation in part of 5982069) to Rao (hereinafter Rao) in view of US Patent 5973421 to Iwabuchi (hereinafter Iwabuchi).

Rao discloses a winding having a varying cross sectional area along its length; the winding being made of conductive material defining a flat band with a generally triangular shape; having first, second and third curved portions; first and second active portions and an inactive portion.

However, Rao fails to disclose:

- the winding being rotatable; and
- the winding being used in a voice coil for a disk drive.

Iwabuchi discloses a voice coil motor actuator for a magnetic disk drive comprising:

- a rotatable spiral winding (18) made of conductive material defining a flat band with a generally triangular shape with an open center (Figures 1A, 1B);
- first and second active leg portions (which generate a magnetic flux to act on the magnet upon energization, thereby applying a pivot force to the positioner) and an inactive leg portion (column 1, lines 60-65)

It would have been obvious at the time of the invention was made to use the structure of the winding as disclosed by Rao in a voice coil for a disk drive having rotatable spiral winding as disclosed by Iwabuchi, since it is known in the art the voice coils have advantages, such as: easier assembly; reduced cost of manufacture and it provides a compact structure.

With regards to claim 7, Rao discloses that the cross-sectional area of each of the segments that define the inactive leg portion is smaller than the cross-sectional area of each of the remaining segments that define the first and second active leg portions (Figure 3 of the '069 patent).

With regards to claim 9, Rao discloses that the radius of curvature of the first curved corner portion is greater than the radius of curvature of the second and third curved corner portions.

With regards to claim 10, Rao discloses that the radius of curvature of the second curved corner portion is equal to the radius of curvature of the third curved corner portion.

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With regards to claim 16, the combination of Iwabuchi and Rao teaches the claimed limitations including the actuator member (16) in a disk drive.

With regards to claim 17, Rao discloses that the cross-sectional area of the segments that define the inactive leg portion is smaller than the cross-sectional area of the remaining segments.

With regards to claim 19, Rao discloses that the radius of curvature of the first curved corner portion is greater than the radius of curvature of the second and third curved corner portions.

With regards to claim 20, Rao discloses that the radius of curvature of the second curved corner portion is equal to the radius of curvature of the third curved corner portion

With regards to claim 51, the combination of Iwabuchi and Rao discloses the claimed structure including the voice coil for driving an actuator arm to various positions over a disk of a disk drive and the structure of the voice coil.

With regards to claim 52, Rao discloses that the spiral winding is a planar coil (see figure 3 of the '650 document).

With regards to claim 53, Rao discloses that the spiral winding, is a single-layer coil.

With regards to claim 54, Rao discloses that the spiral winding is a planar single-layer coil.

Referring to claim 55, Rao discloses that the spacing between each loop of the spiral winding remains substantially the same throughout the spiral winding (see figure 4 of the '069 reference).

Referring to claim 56, Rao discloses that the height of the spiral winding remains substantially the same throughout the spiral winding (figure 6 of the '650 document).

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Referring to claim 57, Rao discloses that the spacing between each loop of the spiral winding remains substantially the same throughout the spiral winding, and the height of the spiral winding remains substantially the same throughout the spiral winding.

With regards to claim 58, Rao discloses that a width of the segments defining the inactive leg portion is substantially smaller than a width of the segments defining the first and second active leg portions.

With regards to claim 59, Rao discloses that a width of the segments defining the first active leg portion is the same as a width of the segments defining the second active leg portion I.

Referring to claim 60, Rao discloses that the cross-sectional area of the segments defining the inactive leg portion is substantially smaller than the cross-sectional area of the segments defining the first and second active leg portions.

With regards to claim 61, Rao discloses that the cross-sectional area of the segments defining the first active leg portion is the same as the cross-sectional area of the segments defining the second active leg portion.

With regards to claim 62, Rao discloses a top insulating layer and a bottom insulating layer, wherein the spiral winding is sandwiched between the top and bottom insulating layers.

With regards to claim 64, Rao discloses that the top insulating layer is secured to the spiral winding by an adhesive (epoxy).

With regards to claim 65, Rao discloses that the bottom-insulating layer is secured to the spiral winding by an adhesive.

With regards to claim 66, Rao discloses that the top and bottom insulating layers are secured to the spiral winding by adhesives.

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With regards to claim 67, the combination of Iwabuchi and Rao discloses the claimed invention including the limitation of the winding adapted to interact with the magnetic field of a permanent magnet (7) and the structure of the winding.

With regards to claim 68, Rao discloses that the spacing between each loop of the spiral winding remains substantially the same throughout the spiral winding, and the height of the spiral winding remains substantially the same throughout the spiral winding.

With regards to claim 69, Rao discloses that the cross-sectional area of the segments defining the inactive leg portion is substantially smaller than the cross-sectional area of the segments defining the first and second active leg portions, and a cross-sectional area of the segments defining the first active leg portion is the same as a cross-sectional area of the segments defining the second active leg portion.

With regards to claim 70, Rao discloses a top insulating layer and a bottom insulating layer, wherein the spiral winding is sandwiched between the top and bottom insulating layers and secured to the top and bottom insulating layers by adhesives.

4. Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rao in view of Iwabuchi as applied to claim 62 above, and further in view of US Pat. 4,728,390 to Yamamoto (hereinafter Yamamoto).

Iwabuchi and Rao substantially teach the claimed invention except that they do not show that the first and second layers are polyimide.

Yamamoto discloses that the first and second layers are polyimide for the purpose of insulating the layers of conductive material (column 3, lines 3-14). The polyimide is known in the art as an insulator having advantages such as that its thickness can be easily controlled, it is

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thin and light in weight and provides excellent mechanical and heat resistant properties.

Therefore, It would have been obvious at the time of the invention was made to use polyimide as insulating layers because of its known advantageous properties.

Allowable Subject Matter

5. Claims 25 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 1-5, 11-15, 31-50 are allowed.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

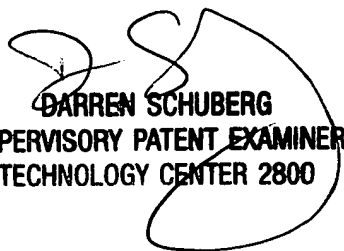
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaydi A. Aguirrechea whose telephone number is 571-272-2018. The examiner can normally be reached on M-Th 9-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAA
4/24/04


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